



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,883	01/09/2002	Sanjaya Kumar	ANDIP007	1172

22434 7590 10/18/2006

BEYER WEAVER & THOMAS, LLP  
P.O. BOX 70250  
OAKLAND, CA 94612-0250

EXAMINER
----------

SERRAO, RANODHI N

ART UNIT	PAPER NUMBER
----------	--------------

2141

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

10/045,883

Applicant(s)

KUMAR ET AL.

Examiner

Ranodhi Serrao

Art Unit

2141

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 28 September 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).


4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 1,3-29 and 31-52.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See attached Response to Arguments.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_  
13. ☐ Other: \_\_\_\_\_.

  
RUPAL DHARIA  
SUPERVISORY PATENT EXAMINER

***Response to Arguments***

1. Applicant's arguments filed 28 September 2006 have been fully considered but they are not persuasive.
2. The applicant argued the newly added limitations of claim 21. However, the prior art of record teach these added features. See below rejections.
3. Furthermore, the applicant argued that Terrell fails to disclose sending a message to a physical port indicating that the physical port is to handle messages addressed to an address or identifier assigned to the virtual port. However, this is incorrect since in ¶ 123, Terrell states, "...receives frames in a first transaction and that prepares frames directed to a nonvirtual member..." A message directed towards a nonvirtual member is the same as a message being sent to a physical port as claimed. Furthermore a physical port of the router handles the message, see ¶ 228.
4. The argument that, the nonvirtual participant receiving the frame for processing is not instructed to handle messages addressed to a virtual port, is not valid since the claim reads sending a message to a physical port indicating that the physical port is to handle messages. The claimed does not state a nonvirtual participant processing the message. Even then, the router has a physical port and therefore is a nonvirtual participant. The examiner points out that the pending claims must be "given the broadest reasonable interpretation consistent with the specification" [In re Prater, 162 USPQ 541 (CCPA 1969)] and "consistent with the interpretation that those skilled in the art would reach" [In re Cortright, 49 USPQ2d 1464 (Fed. Cir. 1999)].

Art Unit: 2141

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the instruction of a physical port to function on behalf of a virtual port as set forth in Blumenau is not **dynamic** (emphasis added)) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. In conclusion, upon taking the broadest reasonable interpretation of the claims, the cited references teach all of the claimed limitations. And the rejections are reaffirmed. See below.

#### ***Claim Rejections - 35 USC § 102***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Terrell et al. (2003/0210686).

9. As per claims 21, Terrell et al. teaches in a first network device a method of implementing storage virtualization in a storage area network, the method comprising: sending a virtualization message to a physical port of a second network device within the storage area network, the virtualization message instructing the physical port to handle messages addressed to a virtual port of a virtual enclosure, the virtual enclosure having one or more virtual ports and being adapted for representing one or more virtual

Art Unit: 2141

storage units, each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (§ 25), wherein the virtualization message indicates that the physical port is to handle messages addressed to an address or identifier assigned to the virtual port (§ 228-238); and receiving a virtualization response from the physical port of the network device in response to the virtualization message (§ 308).

***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1 and 3-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau et al. (6,260,120) and Terrell et al.

12. As per claim 1, Blumenau et al. teaches a method of implementing storage virtualization in a storage area network (see Blumenau et al., column 8, lines 5-10), the method comprising: creating a virtual enclosure, the virtual enclosure having one or more virtual ports and being adapted for representing one or more virtual storage units, each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (see Blumenau et al., column 7, lines 16-23); associating each of the virtual ports of the virtual enclosure with a port of a network device within the storage area network (see Blumenau et al., column 18, lines 8-34), thereby enabling one or more network devices within the storage area network to be associated with the virtual ports (see Blumenau et al., col. 25, lines 8-28);

Art Unit: 2141

and assigning an address or identifier to each of the virtual ports (see Blumenau et al., column 11, line 58-column 12, line 8). But fails to teach a method wherein associating each of the virtual enclosure ports of the virtual enclosure with a port of a network device within the storage area network, includes: sending a message from a first network device to a physical port of a second network device within the storage area network to instruct the physical port of the second network device to handle messages addressed to the address or identifier assigned to the associated virtual port, thereby enabling the first network device to instruct the physical port of the second network device to act on behalf of the virtual port. However, Terrell et al. teaches a method wherein associating each of the virtual enclosure ports of the virtual enclosure with a port of a network device within the storage area network, includes: sending a message from a first network device to a physical port of a second network device within the storage area network to instruct the physical port of the second network device to handle messages addressed to the address or identifier assigned to the associated virtual port (see Terrell et al., ¶ 158), thereby enabling the first network device to instruct the physical port of the second network device to act on behalf of the virtual port (see Terrell et al., ¶ 237). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to wherein associating each of the virtual enclosure ports of the virtual enclosure with a port of a network device within the storage area network, includes: sending a message from a first network device to a physical port of a second network device within the storage area network to instruct the physical port of the second network device to handle messages addressed to the

Art Unit: 2141

address or identifier assigned to the associated virtual port, thereby enabling the first network device to instruct the physical port of the second network device to act on behalf of the virtual port in order to implement storage virtualization by receiving a frame from the network, determining by parsing the frame, the protocol and logical unit number, and routing the frame to a queue according to a traffic class associated with the logical unit number in routing information prepared for the processors (see Terrell et al., abstract).

13. As per claim 3, Blumenau et al. and Terrell et al. teach a network device, wherein the storage area network is a virtual storage area network (see Blumenau et al., column 24, lines 31-55).

14. As per claim 4, Blumenau et al. and Terrell et al. teach a network device, wherein a Node World Wide Name is associated with the virtual enclosure (see Blumenau et al., column 11, lines 15-24).

15. As per claim 5, Blumenau et al. and Terrell et al. teach the mentioned limitations of claims 1 and 4 above but Blumenau et al. fails to teach a network device, wherein a Port World Wide Name is assigned to each of the virtual ports such that the Port World Wide Name is associated with an associated physical port of a network device within the storage area network. However, Terrell et al. teaches a network device, wherein a Port World Wide Name is assigned to each of the virtual ports such that the Port World Wide Name is associated with an associated physical port of a network device within the storage area network (see Terrell et al., ¶ 96). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to a

Art Unit: 2141

network device, wherein a Port World Wide Name is assigned to each of the virtual ports such that the Port World Wide Name is associated with an associated physical port of a network device within the storage area network in order to develop routing information between physical entities by routers without user intervention (see Terrell et al., ¶ 97).

16. As per claim 6, Blumenau et al. and Terrell et al. teach the mentioned limitations of claim 1 above but Blumenau et al. fails to teach a network device, wherein the physical port of the second network device within the storage area network is a port of a fibre channel device. However, Terrell et al. teaches a network device, wherein the physical port of the second network device within the storage area network is a port of a fibre channel device (see Terrell et al., ¶ 217). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to a network device, wherein the physical port of the second network device within the storage area network is a port of a fibre channel device in order to implement storage virtualization by receiving a frame from the network, determining by parsing the frame, the protocol and logical unit number, and routing the frame to a queue according to a traffic class associated with the logical unit number in routing information prepared for the processors (see Terrell et al., abstract).

17. As per claim 7, Blumenau et al. and Terrell et al. teach a network device, wherein an FCID is assigned to each of the virtual ports (see Blumenau et al., column 28, lines 33-51).



Art Unit: 2141

18. As per claim 8, Blumenau et al. and Terrell et al. teach a method, further comprising: selecting a number of virtual enclosure ports to be included in the virtual (see Blumenau et al., column 24, lines 10-33).

19. As per claim 9, Blumenau et al. and Terrell et al. teach a network device, wherein the number of virtual ports of the virtual enclosure is greater than a number of ports of each network device within the storage area network (see Blumenau et al., column 18, lines 8-34).

20. As per claim 10, Blumenau et al. and Terrell et al. teach a method, wherein associating each of the virtual ports of the virtual enclosure with a port of a second network device within the storage area network comprises: associating the virtual ports with ports of one or more network devices within the storage area network (see Blumenau et al., column 25, lines 29-49).

21. As per claim 11, Blumenau et al. and Terrell et al. teach a network device, wherein associating each of the virtual ports of the virtual enclosure with a port of a network device within the storage area network comprises: sending a bind message to a port of a network device within the storage area network (see Blumenau et al., col. 24, lines 10-33), thereby binding the port of a network device within the storage area network to one or more of the virtual ports (see Blumenau et al., column 10, lines 42-67).

22. As per claim 12, Blumenau et al. and Terrell et al. teach a network device, further comprising: sending a trap message to one or more additional ports of one or more network devices within the storage area network (see Blumenau et al., col. 41, lines 22-

Art Unit: 2141

53), thereby instructing the one or more additional ports of one or more network devices within the storage area network to trap messages directed to one of the virtual ports (see Blumenau et al., column 41, lines 8-21).

23. As per claim 13, Blumenau et al. teaches a network device, wherein one or more of the virtual storage units each comprises a VLUN or other virtual representation of storage on the storage area network (see Blumenau et al., column 24, lines 34-55 and column 43, lines 1-21).

24. As per claim 14, Blumenau et al. and Terrell et al. teach a method, farther comprising: assigning one or more virtual storage units to the virtual enclosure (see Blumenau et al., column 24, lines 34-55).

25. As per claim 19, Blumenau et al. teaches a method of performing LUN mapping in a storage area network, the method comprising: accessing a LUN mapping table having one or more entries (see Blumenau et al., column 7, lines 9-11), each of the entries identifying an initiator in the storage area network, one or more of a set of one or more virtual ports of a virtual enclosure, and associating a specified logical unit with one or more virtual storage units (see Blumenau et al., column 27, lines 23-38), each of the virtual storage units representing one or more physical storage locations on one or more physical storage units of the storage area network (see Blumenau et al., column 24, lines 10-33), and when a request for the specified logical unit is received from the initiator via one of the associated virtual ports, identifying one of the entries in the LUN mapping table and employing the one or more virtual storage units specified in the entry to service the request (see Blumenau et al., column 29, lines 43-56). But fails to teach

Art Unit: 2141

wherein the virtual enclosure is adapted for representing the set of one or more virtual storage units and each of the virtual enclosure ports is associated with a port of a network device within the storage area network, wherein the port of the network device has received a message from another network device instructing the port to handle messages addressed to the associated virtual port. However, Terrell et al. teaches wherein the virtual enclosure is adapted for representing the set of one or more virtual storage units and each of the virtual enclosure ports is associated with a port of a network device within the storage area network, wherein the port of the network device has received a message from another network device instructing the port to handle messages addressed to the associated virtual port (see Terrell et al., ¶ 158). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Blumenau et al. to wherein the virtual enclosure is adapted for representing the set of one or more virtual storage units and each of the virtual enclosure ports is associated with a port of a network device within the storage area network, wherein the port of the network device has received a message from another network device instructing the port to handle messages addressed to the associated virtual port in order to implement storage virtualization by receiving a frame from the network, determining by parsing the frame, the protocol and logical unit number, and routing the frame to a queue according to a traffic class associated with the logical unit number in routing information prepared for the processors (see Terrell et al., abstract).

26. As per claim 22, Terrell et al. teaches the mentioned limitations of claim 21 above but fails to teach an apparatus, wherein the virtual port is identified by a NWWN and a PWWN. However, Blumenau et al. teaches a method, wherein the virtual enclosure port is identified by a NWWN and a PWWN (see Blumenau et al., column 12, lines 27-54). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Terrell et al. to a method, wherein the virtual enclosure port is identified by a NWWN and a PWWN in order to create a method that may be transparent to any high-level file system procedures that may be used by the hosts for managing access to files stored in the logical volumes to which a host is permitted to access (see Blumenau et al., col. 2, lines 19-41).

27. As per claims 23-31 and 36-49, the above-mentioned motivation of claim 22 applies fully in order to combine Blumenau et al. and Terrell et al.

28. As per claim 23, Blumenau et al. and Terrell et al. teach an apparatus, wherein the virtualization response indicates that the physical port is configured to handle messages addressed to the virtual port of the virtual enclosure (see Terrell et al., ¶ 25).

29. As per claim 24, Blumenau et al. and Terrell et al. teach an apparatus, wherein the virtualization message indicates that the physical port is to obtain an address or identifier assigned to the virtual port (see Terrell et al., ¶ 25).

30. As per claim 25, Blumenau et al. and Terrell et al. teach an apparatus, wherein the virtualization message is a bind message or a trap message (see Blumenau et al., column 11, lines 41-57).

31. As per claim 26, Blumenau et al. and Terrell et al. teach an apparatus, wherein the virtualization response comprises the address or identifier assigned to the virtual port (see Blumenau et al., column 11, line 58-column 12, line 8).

32. As per claim 27, Blumenau et al. and Terrell et al. teach an apparatus, wherein the virtualization message indicates that the port is to obtain an address or identifier assigned to the virtual enclosure port from a DNS server (see Terrell, ¶ 96).

33. As per claim 28, Blumenau et al. and Terrell et al. teach a method, further comprising: receiving an address or identifier assigned to the virtual port (see Blumenau et al., column 12, lines 27-54).

34. As per claim 37, Blumenau et al. and Terrell et al. teach a method, further comprising: obtaining and storing the address or identifier assigned to the virtual port (see Blumenau et al., column 12, lines 27-54).

35. As per claim 39, Blumenau et al. and Terrell et al. teach a method, further comprising: sending the address or identifier assigned to the virtual port (see Blumenau et al., column 12, lines 27-54).

36. As per claim 43, Blumenau et al. and Terrell et al. teach a method, further comprising: handling messages addressed to the address or identifier assigned to the virtual port (see Blumenau et al., column 16, line 60-column 17, line 19).

37. As per claim 46, Blumenau et al. and Terrell et al. teach a method, further comprising: receiving a report message requesting an identification of one or more of the virtual storage units supported by an address or identifier assigned to one of the virtual ports (see Blumenau et al., column 12, lines 27-54); sending a reply message

Art Unit: 2141

identifying one or more of the virtual storage units (see Blumenau et al., column 25, lines 50-67).

38. As per claim 49, Blumenau et al. and Terrell et al. teach a method, wherein the one or more of the virtual storage units identified in the reply message are those virtual storage units that are visible to an initiator sending the report message (see Blumenau et al., column 25, lines 50-67).

39. Claims 15-18, 20, 29-36, 38, 40-42, 44, 45, 47, 48, and 50-52 have similar limitations as to claims 1-14, 19, 21-28, 37, 39, 43, 46, and 49, therefore, they are being rejected under the same rationale.

### ***Conclusion***

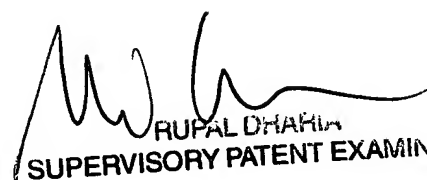
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ranodhi Serrao whose telephone number is (571)272-7967. The examiner can normally be reached on 8:00-4:30pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharra can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2141

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RUPAL DHAR  
SUPERVISORY PATENT EXAMINER